

WHAT IS CLAIMED IS:

1. A method of pre-emphasizing an optical system launch power profile, comprising:
measuring a signal-to-noise ratio (*SNR*) over *m* spans of an *n* span optical system,
wherein $m < n$; and
pre-emphasizing the launch power profile based on a function of the measured *SNR*.
2. The method of claim 1, wherein each span of the *n* spans comprises a link and at least one repeater.
3. The method of claim 1, wherein the function comprises an inverse of the *SNR*.
4. The method of claim 1, wherein the *SNR* comprises a *SNR* profile.
5. The method of claim 1, further comprising:
optimizing the pre-emphasis of the launch power profile such that a profile of the *SNR* comprises a substantially constant value.
6. The method of claim 1, further comprising:
selectively repeating the launch power profile pre-emphasis to optimize the measured *SNR*.

7. A system for pre-emphasizing an optical system launch power profile, comprising:
means for measuring a signal-to-noise ratio (*SNR*) over *m* spans of an *n* span optical system, wherein $m < n$; and
means for pre-emphasizing the launch power profile based on a function of the measured *SNR*.
8. A method of transmitting signals in an optical system comprising a set of spans, the method comprising:
transmitting optical signals according to a first launch power profile;
determining power-related parameters over a subset of the set of spans; and
transmitting optical signals according to a second launch power profile based on the determined power-related parameters.
9. The method of claim 8, wherein the power-related parameters comprise a signal-to-noise power ratio profile.
10. The method of claim 8, further comprising:
comparing the power-related parameters to a set of desired parameters.
11. The method of claim 10, further comprising:
adjusting the second launch power profile until the determined power-related parameters substantially equal the set of desired parameters.

12. The method of claim 11, wherein the set of desired parameters comprises a signal-to-noise ratio (*SNR*) profile.

13. The method of claim 12, wherein the *SNR* profile comprises a substantially constant *SNR* value.

14. An optical transmission system, comprising:

a set of spans, wherein each span of the set of spans comprises a link and at least one repeater;

an optical transmitter configured to transmit optical signals over the set of spans according to a first launch power profile; and

a monitor unit configured to determine power-related parameters over a subset of the set of spans,

the optical transmitter further configured to transmit optical signals according to a second launch power profile based on the determined power-related parameters.

15. The system of claim 14, wherein the power-related parameters comprise a signal-to-noise power ratio profile.

16. The system of claim 14, the optical transmitter further configured to:
compare the power-related parameters to a set of desired parameters.

17. The system of claim 16, the optical transmitter further configured to:
adjust the second launch power profile until the determined power-related parameters substantially equal the set of desired parameters.
18. The system of claim 17, wherein the set of desired parameters comprises a signal-to-noise ratio (*SNR*) profile.
19. The system of claim 18, wherein the *SNR* profile comprises a substantially constant *SNR* value.
20. A method of optimizing optical system signal-to-noise ratio (*SNR*), comprising:
measuring *SNR* over *m* spans of a *n* span optical system, wherein $m < n$; and
adjusting a system launch power profile to optimize the *SNR* measured over the *m* spans.
21. The method of claim 20, wherein each span of the *n* spans comprises a link and at least one repeater.
22. The method of claim 20, wherein the *SNR* comprises a *SNR* profile.

23. The method of claim 22, further comprising:

adjusting the system launch power profile such that the *SNR* profile comprises a substantially constant value.

24. The method of claim 20, further comprising:

selectively repeating the system launch power profile adjustment to optimize the measured *SNR*.

25. An system for optimizing optical system signal-to-noise ratio (*SNR*), comprising:

a monitoring unit configured to measure *SNR* over *m* spans of an *n* span optical system, wherein $m < n$; and

an optical transmitter configured to adjust a system launch power profile to optimize the *SNR* measured over the *m* spans.

26. The system of claim 25, wherein each span of the *n* spans comprises a link and at least one repeater.

27. The system of claim 25, wherein the *SNR* comprises a *SNR* profile.

28. The system of claim 27, further comprising:

adjusting the system launch power profile such that the *SNR* profile comprises a substantially constant value.

29. The system of claim 25, further comprising:

selectively repeating the system launch power profile adjustment to optimize the measured *SNR*.

30. The method of claim 3, wherein said inverse of the *SNR* is normalized based on a channel having a lowest *SNR* performance.